IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Appellant:	Nagarajan et al.		
Case:	Nagarajan 13-10 (LCNT/122459)		
Serial No.:	09/849,187	**Group Art Unit:**	2616
Filed:	May 4, 2001		
Examiner:	Robert W. Wilson		
Title:	TRAFFIC GROOMING METHODS FOR UNDERSEA TRUNK AND BRANCH ARCHITECTURES		

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Commissioner for Patents
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SIR:

APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2616 dated May 24, 2006 finally rejecting claims 1, 3-6, 8-10, 14, 15 and 17-20.

In the event that an extension of time is required for this appeal brief to be considered timely, and a petition therefor does not otherwise accompany this appeal brief, any necessary extension of time is hereby petitioned for.

The Commissioner is authorized to charge the Appeal Brief fee ($500) and any other fees due to make this filing timely and complete (including extension of time fees) to Deposit Account No. 20-0782/LCNT/122459.

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Real Party in Interest

The real party in interest is LUCENT TECHNOLOGIES INC.

Related Appeals and Interferences

Appellants assert that no appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1, 3-6, 8-10, 14, 15 and 17-20 are pending in the application. Claims 1-18 were originally presented in the application. Claims 19-20 were added by amendment. Claims 2, 7, 11-13 and 16 have been canceled without prejudice. Claims 1, 3-6, 8-10,14, 15 and 17-20 stand finally rejected as discussed below. The final rejection of claims 1, 3-6, 8-10, 14, 15 and 17-20 is appealed.

Status of Amendments

A response was filed on December 16, 2004 in response to a first non-final Office Action dated September 17, 2004. In the first non-final Office Action, the Examiner rejected claims 1-18 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,899,337 by Hirai (hereinafter "Hirai"). In the response filed December 16, 2004, the Appellants cancelled claims 11-13, and set forth arguments traversing the rejections issued by the Examiner.

A response was filed on June 23, 2005 in response to a second non-final Office Action dated April 1, 2005. In the second non-final Office Action, the Examiner rejected claims 1-4 and 6-9 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,754,545 by Shinbashi (hereinafter "Shinbashi"), and rejected claims 5, 10, and 14-18 under 35 U.S.C. §103(a) as being unpatentable over Shinbashi. In the response filed June 23, 2005, the Appellants amended claims 5, 6, 10, 14, and 15, added new claims 19 and 20 depending from claim 1, and set forth arguments traversing the rejections issued by the Examiner.

A response was filed on September 8, 2005 in response to a third non-final Office Action dated July 11, 2005. In the third non-final Office Action, the Examiner objected to claims 2, 7, and 20 for informalities, and rejected claims 1-10 and 14-20. The Examiner rejected claims 1, 3, 6-7, 14, 16, and 18 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,185,736 by Tyrell (hereinafter "Tyrell") in view of U.S. Patent No. 6,542, 511 by Livermore (hereinafter "Livermore"). The Examiner rejected claims 5, 10, and 15 under 35 U.S.C. §103(a) as being unpatentable over Tyrell in view of Livermore and further in view of Shinbashi. The Examiner rejected claims 4, 9 and 17 under 35 U.S.C. §103(a) as being unpatentable over Tyrell in view of Livermore further in view of U.S. Patent No. 5,105,420 by Ardon (hereinafter "Ardon") and further in view of U.S. Patent No. 5,214,312 by Inoue (hereinafter "Inoue"). The Examiner rejected claims 19 and 20 under 35 U.S.C. §103(a) as being unpatentable over Tyrell in view of Livermore further in view of U.S. Patent No. 6,075,630 by Nishio (hereinafter "Nishio"). In the response filed September 8, 2005, the Appellants amended claim 20, cancelled

claims 2 and 7, and set forth arguments traversing the objections and rejections issued by the Examiner.

A response was filed on December 20, 2005 in response to a fourth non-final Office Action dated September 26, 2005. In the fourth non-final Office Action, the Examiner objected to claims 1, 3-6, 8-10, 16, 17, and 19-20 for informalities, and rejected claims 1, 3-6, 8-10, and 14-20. The Examiner rejected claims 1, 6, and 14 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,724,722 by Wang (hereinafter "Wang"). The Examiner rejected claims 3, 8, and 16 under 35 U.S.C. §103(a) as being unpatentable over Wang. The Examiner rejected claims 4, 9, 17, and 18 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of the Appellants' specification. The Examiner rejected claims 5, 10, and 15 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Tyrell. The Examiner rejected claims 19 and 20 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of U.S. Patent No. 5,253,248 by Dravida (hereinafter "Dravida"). In the response filed December 20, 2005, the Appellants amended claims 1, 6, 14, and 19, cancelled claim 16, and set forth arguments traversing the objections and rejections issued by the Examiner.

A response was filed on July 21, 2006 in response to a Final Office Action dated May 24, 2006. In the Final Office Action, the Examiner maintained the objections to claims 1, 3-6, 8-10, 17, and 19-20, and the rejection of claims 1, 3-6, 8-10, 14, 15, and 17-20. The Examiner rejected claims 1, 3, 6, 8, and 14 under 35 U.S.C. §103(a) as being unpatentable over Wang. The Examiner rejected claims 4, 9, 17, and 18 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of the Appellants' specification. The Examiner rejected claims 5, 10, and 15 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Tyrell. The Examiner rejected claims 19 and 20 under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Dravida. In the response filed July 21, 2006, the Appellants set forth arguments traversing the objections and rejections issued by the Examiner.

The Examiner responded to the Appellants' response of July 21, 2006 with an Advisory Action dated August 2, 2006. In the Advisory Action, the Examiner asserted that Appellants' response to the Final Office Action did not place Appellants' application in condition for allowance. The Advisory Action reiterated the Examiner's objections and

rejections of the Appellants' claims as enumerated in the Final Office Action dated May 24, 2006, and set forth additional reasons for the Examiner's objections.

The claims on appeal are those of the response filed July 21, 2006 in response to the Final Office Action dated May 24, 2006.

Summary of Claimed Subject Matter

The embodiments of the present invention are generally directed to a node, an apparatus, and a method for performing selective grooming of low capacity client signals into a high capacity client signal. In comparison with terrestrial systems, cost per bandwidth mile in an undersea cable system is very high such that grooming of signals at many levels is desirable. Appellants' invention provides an additional traffic grooming method, i.e., selective grooming. In selective grooming, a first type-one node is coupled directly to a second type-one node via a high capacity trunk and to a type-two node via another high capacity trunk such that only a portion of the client signals destined for the second type-one node are groomed into the high capacity trunk to the type-two node. The selective grooming of signals provides an opportunity for reducing network cost without resulting in any additional security risk to the network or changing the reliability characteristics of the network.

A node according to at least one embodiment of the invention includes an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk for directly coupling to a type two node, where only a portion of low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node.

An apparatus according to at least one embodiment of the invention includes a node coupled directly to a first node via a first high capacity trunk and directly to a second node via a second high capacity trunk, such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node.

A method according to at least one embodiment of the invention includes the steps of receiving low capacity client signals, selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node, and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node, where the others of the low capacity signals transmitted over the second

high capacity trunk comprise low capacity client signals destined for the first type of node.

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 6, and 14 are presented below in claim format with elements read on the various figures of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Claim 1 positively recites (including reference numerals, where applicable, and cites to at least one portion of the specification):

1. (Previously Presented) A node (CS 505) for grooming low capacity client signals (E1 506, 507) into a high capacity signal (STM-1 Pipes), comprising:

an interface (CS 505) to a first high capacity trunk (STM-1 Pipe 515) for directly coupling to a type one node (CS 520); (Pg. 7, Line 20 – Pg. 8, Line 13) and

an interface (CS 505) to a second high capacity trunk (STM-1 Pipe Between CS 505 and CO B) for directly coupling to a type two node (CO B); (Pg. 7, Line 20 – Pg. 8, Line 13)

wherein only a portion of those low capacity client signals (E1 507) destined for the type one node (CS 520) are groomed into the second high capacity trunk (STM-1 Pipe Between CS 505 and CO B) to the type two node (CO B). (Pg. 7, Line 20 – Pg. 8, Line 13)

Claim 6 positively recites (including reference numerals, where applicable, and cites to at least one portion of the specification):

6. (Previously Presented) An apparatus (CS 505) for performing selective grooming of client signals (E1 506, 507), the apparatus comprising:

a node (CS 505) coupled (a) directly to a first node (CS 520) via a first high capacity trunk (STM-1 Pipe 515), and (b) directly to a second node (CO B) via a second high capacity trunk (STM-1 Pipe Between CS 505 and CO B) such that only a portion of the client signals (E1 507) destined for the first node (CS

520) are groomed into the high second capacity trunk (STM-1 Pipe Between CS 505 and CO B) to the second node (CO B). (Pg. 7, Line 20 – Pg. 8, Line 13)

Claim 14 positively recites (including reference numerals, where applicable, and cites to at least one portion of the specification):

14. (Previously Presented) A method for use in a node (CS 505), the method comprising the steps of:

receiving low capacity client signals (E1 506, 507); (Pg. 7, Line 20 – Pg. 8, Line 13)

selectively grooming a portion of the received low capacity client signals (E1 507) into a first high capacity trunk (STM-1 Pipe 515) directly coupled to a first type of node (CS 520) for transmission to the first type of node; (Pg. 7, Line 20 – Pg. 8, Line 13) and

transmitting others of the low capacity client signals (E1 506) over a second high capacity trunk (STM-1 Pipe Between CS 505 and CO B) directly coupled to a second type of node (CO B); (Pg. 7, Line 20 – Pg. 8, Line 13)

wherein said others of the low capacity signals (E1 506) transmitted over the second high capacity trunk (STM-1 Pipe Between CS 505 and CO B) comprise low capacity client signals destined for the first type of node (CS 520). (Pg. 7, Line 20 – Pg. 8, Line 13)

For the convenience of the Board of Patent Appeals and Interferences, Appellants' dependent claims are presented below in claim format with elements read on the various figures of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

19. (Previously Presented) The apparatus of claim 1, wherein grooming of the portion of those low capacity client signals destined for said type one node into the second high capacity trunk to said type two node further comprises:

determining (605) an amount of traffic between another type one node and said type one node; (Pg. 7, Lines 21-22)

determining (610) whether said amount of traffic between said another type one node and said type one node exceeds a threshold, said threshold comprising a fraction of a capacity of said first high capacity trunk; (Pg. 7, Lines 22-26) and

if said amount of traffic between said type one node and said another type one node does not exceed said threshold, routing (610) said amount of traffic over said second high capacity trunk to said type two node. (Pg. 7, Line 29 – Pg. 8, Line 13)

20. (Previously Presented) The apparatus of claim 19, further comprising:

if said amount of traffic between said type one node and said another type one node exceeds said threshold, provisioning (615) at least one additional trunk between said another type one node and said type one node. (Pg. 7, Lines 26-27)

Appellants respectfully note that dependent claim 15 includes an error previously overlooked by both the Appellants and the Examiner. Namely, in Appellants' response filed on June 23, 2005 Appellants amended claim 15 to modify a portion of one of the limitations to read "wherein the low capacity client signals comprise plesiochronous digital hierarchy signals," however, in each of the Appellants' subsequent responses, Appellants inadvertently omitted the words "comprise plesiochronous digital hierarchy" such that claim 15 incorrectly reads "wherein the low capacity client signals signals." For purposes of clarity in evaluating the claims on appeal, Appellants have herein modified the incorrect version of claim 15 provided in Appellants' response to the Final Office Action to reflect the correct language of the claim as amended by the Appellants in Appellants' response filed on June 23, 2005.

Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3, 6, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent 6,724,722, hereinafter "Wang").

Claims 4, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Appellants' specification admitted prior art.

Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Tyrrell (U.S. patent No. 5,185,736, hereinafter "Tyrrell").

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Dravida.

Arguments

THE EXAMINER ERRED IN REJECTING CLAIMS 1, 3, 6, 8-10, 14, 15, AND 17-20 UNDER 35 U.S.C. § 103(a).

A. Claims 1, 3, 6, 8, and 14

Claims 1 and 3:

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent No. 6,724,722, hereinafter "Wang"). Appellants respectfully traverse the rejection.

In general, Wang teaches management of potential traffic growth, and associated congestion, in an information network. Specifically, Wang teaches that traffic demands from a source node to a destination node are monitored and, for each demand, and for each link of the network, the portion of the bandwidth associated with each traffic demand that is provided by the given link is determined. A maximum value of link utilization among all links of the network is then determined, and the traffic demands are routed across the links of the network in such a manner as to minimize the maximum value of link utilization. (Wang, Abstract).

Wang, however, fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk for directly coupling to a type two node, where only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1. Specifically, Appellants' claim 1 positively recites:

> "A node for grooming low capacity client signals into a high capacity signal, comprising:
> an interface to a first high capacity trunk for directly coupling to a type one node; and
> an interface to a second high capacity trunk for directly coupling to a type two node;
> wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node."

In the Final Office Action dated May 24, 2006, the Examiner interprets nodes C and F of Figure 1 of Wang as type 1 nodes (because they are edge nodes) and interprets nodes D and E of Figure 1 of Wang as type 2 nodes (because they are not edge nodes). The Examiner then asserts that node C of Wang includes an interface to a first high capacity trunk which is indirectly coupled to a type 1 node (node F) via node D and links CD and DF, and an interface to a second high capacity trunk which is directly coupled to a type 2 node (node E) via link CE. The Examiner then admits that Wang does not disclose a direct coupling between node F and node C. Rather, as shown in Figure 1 of Wang, node C and node F of Wang are indirectly coupled through another node (illustratively, node D, which is interpreted by the Examiner as a type 2 node). In other words, as admitted by the Examiner, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node, as claimed in Appellants' claim 1.

In the Final Office Action dated May 24, 2006, since the Wang reference fails to teach or suggest Appellants' limitation of an interface to a first high capacity trunk for directly coupling to a type one node, the Examiner then concludes that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to delete node D (repeater node) between nodes C & F because the distance between C & F is short enough that the repeater in not required; therefore, C would be directly coupled to F or type 1 node via a first high capacity trunk." (Final Office Action, Pg. 2, Emphasis added.) Appellants respectfully disagree.

In other words, the Examiner concludes that the distance between nodes C and F is short enough that node D (which the Examiner interprets as a repeater) is not required; however, there is simply no teaching or suggestion anywhere in Wang which supports the Examiner's conclusion. Wang is devoid of any teaching or suggestion of the underlying technology of the nodes of Figure 1. Wang is completely devoid of any teaching or suggestion that node D (or any other node in Wang for that matter) is a repeater. Similarly, Wang is completely devoid of any teaching or suggestion that nodes C and F are nodes which may require a repeater in order to communicate. Rather, Wang is merely concerned with a specific configuration of nodes which results in a routing problem

known as the "fish problem." As such, since Wang is completely devoid of any teaching or suggestion of the types of nodes of Figure 1, there is simply no basis for the Examiner's conclusion that that node D is a repeater or that that nodes C and F may require a repeater in order to communicate.

As described above, the portion of Wang cited by the Examiner merely shows a specific configuration of nodes which results in a routing problem known as the "fish problem." The configuration of nodes taught in Wang is completely independent of the physical distances between the nodes. Similarly, the routing problem described in Wang has nothing to do with the physical distances between nodes. Nodes C and F depicted in Figure 1 of Wang may be located anywhere. This is especially clear from Figure 2 of Wang, which shows a simulation topology including various locations within the United States where such nodes may be located. As such, since Wang is completely devoid of any teaching or suggestion of physical distances between nodes, there is simply no basis for the Examiner's conclusion that that the distance between nodes C and F of Wang is short enough that a repeater in not required.

Furthermore, Wang is completely devoid of any teaching or suggestion of any signal strength transmission capabilities of any of the nodes depicted and described in Wang. Wang has absolutely nothing to do with signal strengths, much less using repeaters for regenerating signals in order to sustain the propagation of the signals between nodes separated by large physical distances. Rather, Wang is clearly directed toward distance-independent schemes for managing traffic flow. As such, even assuming that Wang did teach physical distances between nodes (which Appellants maintain that Wang does not), there would still be no basis in Wang for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater in not required.

In other words, there is clearly no teaching or suggestion in Wang of any physical distance between nodes, signal strength capabilities, repeaters, or any other teachings on which the Examiner's conclusions seem to be based. Furthermore, even if Wang did teach such features (which Appellants maintain that Wang does not), the Examiner's conclusion that node D may be removed would still be incorrect. Figure 1 of Wang is clearly used to demonstrate a problem associated with routing in a network having a

specific network configuration. Removal of node D from Figure 1 of Wang would modify the configuration of nodes, thereby eliminating the problem which the invention of Wang is attempting to solve. As such, Wang actually teaches away from the removal of node D of Figure 1.

As such, for at least the reasons discussed hereinabove, there is no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater in not required. Therefore, since there is no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater in not required, there is absolutely no basis for the Examiner's conclusion that it would have been obvious to delete node D between nodes C and F because the distance between nodes C and F of Wang is short enough that a repeater in not required. Appellants respectfully submit that the Examiner has impermissibly expanded upon the scope of the teachings of Wang. Therefore, there is no suggestion or motivation, either in Wang, or in the knowledge generally available to one ordinarily skilled in the art, to modify Wang as suggested by the Examiner.

Thus, since the Examiner's conclusion is not supported by Wang, Wang merely teaches a general network configuration in which one node may have two interfaces to two other nodes. As described hereinabove, the Examiner interpreted nodes C and F of Figure 1 of Wang as type 1 nodes (because they are edge nodes) and interprets nodes D and E of Figure 1 of Wang as type 2 nodes (because they are not edge nodes). Thus, even assuming that the Examiner's interpretation of the different node types is valid, Wang merely teaches a node having a first interface to a first trunk for directly coupling to a first type 2 node and a second interface to a second trunk for directly coupling to a second type 2 node. A node having a first interface to a first trunk for directly coupling to a first type 2 node and a second interface to a second trunk for directly coupling to a second type 2 node, as taught in Wang, is not a node having an interface to a first high capacity trunk for directly coupling to a type 1 node and an interface to a second high capacity for directly coupling to a type 2 node, as claimed in Appellants' claim 1.

Furthermore, even assuming that nodes C, D, E and F of Wang may be considered type 1 nodes and nodes A, B, and G of Wang may be considered type 2 nodes (e.g., due to use of a circle versus a square to represent the nodes in Figure 1 of Wang), Wang

would merely teach either: (1) a node (node C) having a first interface to a first trunk for directly coupling to a first type 2 node (node A) and a second interface to a second trunk for directly coupling to a second type 2 node (node B); or (2) a node (node C) having a first interface to a first trunk for directly coupling to a first type 1 node (node D) and a second interface to a second trunk for directly coupling to a second type 1 node (node E). Neither scenario described above, however, teaches a node having an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, as claimed in Appellants' claim 1.

As such, irrespective of the different ways in which the Examiner may attempt to categorize the nodes of Figure 1 of Wang as type 1 nodes and type 2 nodes, Wang still fails to teach or even suggest a node having an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, as claimed in Appellants' claim 1. As such, for at least these reasons, Wang fails to teach or suggest Appellants' claim 1, as a whole.

Moreover, Wang also fails to teach or suggest that only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as further claimed in Appellants' claim 1.

With respect to Figure 1 of Wang, assuming that the traffic is split at node C, and that node D is the first node and node E is the second node, splitting of traffic at node C such that a portion of the traffic is sent to node D and another portion of the traffic is sent to node E simply does not teach or suggest that a portion of traffic destined for node D is sent to node E. Wang clearly does not teach transmission of data from C to D along the path C-E-F-D. As such, in this interpretation of Wang, Wang fails to teach or suggest "wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1.

With respect to Figure 1 of Wang, assuming that traffic is split at node C, and that node F is the first node and node E is the second node, although a portion of the traffic destined for node F may be sent to node E, this configuration fails to teach or suggest the specific coupling of nodes of Appellants' claim 1. Namely, in this interpretation of Wang, Wang fails to teach or suggest the limitations of "an interface to a first high capacity

trunk for directly coupling to a type one node" and "an interface to a second high capacity trunk for directly coupling to a type two node," as claimed in Appellants' claim 1.

Therefore, there is no combination of nodes or associated teachings of Wang which teach or suggest "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1. As such, Wang fails to teach or suggest Appellants' claim 1, as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). Wang fails to teach or suggest Appellants' invention of claim 1, as a whole.

As such, for at least the reasons discussed above, Appellants' claim 1 is allowable over Wang under 35 U.S.C. 103(a). Furthermore, claim 3 depends from claim 1 and recites additional limitations therefor. As such, claim 3 is also allowable over Wang under 35 U.S.C. 103(a).

Therefore, Appellants' claims 1 and 3 are allowable over Wang under 35 U.S.C. 103(a).

Claims 6 and 8:

Claim 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent No. 6,724,722, hereinafter "Wang"). Appellants respectfully traverse the rejection.

Wang fails to teach or suggest an apparatus for performing selective grooming of client signals, including a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a

portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node, as claimed in Appellants' claim 6. Specifically, Appellants' claim 6 positively recites:

> "An apparatus for performing selective grooming of client signals, the apparatus comprising:
> a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node."

As described herein with respect to claim 1, Wang merely teaches a specific configuration of nodes which results in a routing problem known as the "fish problem." Specifically, Wang merely teaches a node having a first interface to a first trunk for directly coupling to a first node and a second interface to a second trunk for directly coupling to a second node. Wang, however, fails to teach or suggest that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node, as claimed in Appellants' claim 6.

Rather, Wang merely teaches that traffic transmitted from one edge node (e.g., node C in Figure 1 of Wang) that is destined for another edge node (e.g., node F in Figure 1 of Wang) may be split over two routes, e.g., a first route of A-C-D-F-G and a second route of A-C-E-F-G. This mere splitting of traffic over two paths, however, fails to teach or suggest grooming a portion of client signals destined for the first node into a second high capacity trunk to a second node, as claimed in Appellants' claim 6.

With respect to Figure 1 of Wang, assuming that the traffic is split at node C, and that node D is the first node and node E is the second node, splitting of traffic at node C such that a portion of the traffic is sent to node D and another portion of the traffic is sent to node E simply does not teach or suggest that a portion of traffic destined for node D is sent to node E. Wang clearly does not teach transmission of data from C to D along the path C-E-F-D. As such, in this interpretation of Wang, Wang fails to teach or suggest "that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node," as claimed in Appellants' claim 6.

With respect to Figure 1 of Wang, assuming that traffic is split at node C, and that node F is the first node and node E is the second node, although a portion of the traffic

destined for node F may be sent to node E, this configuration fails to teach or suggest the specific coupling of nodes of Appellants' claim 6. Namely, in this interpretation of Wang, Wang fails to teach or suggest the limitation of "a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk," as claimed in Appellants' claim 6.

Therefore, there is no combination of nodes or associated teachings of Wang which teach or suggest "a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node," as claimed in Appellants' claim 6. As such, Wang fails to teach or suggest Appellants' claim 6, as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). Wang fails to teach or suggest Appellants' invention of claim 6, as a whole.

As such, for at least the reasons discussed above, Appellants' claim 6 is allowable over Wang under 35 U.S.C. 103(a). Furthermore, claim 8 depends from claim 6 and recites additional limitations therefor. As such, claim 8 is also allowable over Wang under 35 U.S.C. 103(a).

Therefore, Appellants' claims 6 and 8 are allowable over Wang under 35 U.S.C. 103(a).

Claim 14:

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent No. 6,724,722, hereinafter "Wang"). Appellants respectfully traverse the rejection.

Wang fails to teach or suggest a method for use in a node, including "receiving low capacity client signals, selectively grooming a portion of the received low capacity

client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node; and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node; wherein said others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node," as claimed in Appellants' claim 14. Specifically, Appellants' claim 14 positively recites:

> "A method for use in a node, the method comprising the steps of:
>
> receiving low capacity client signals;
>
> selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node; and
>
> transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node;
>
> wherein said others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node."

As described herein with respect to claim 1, Wang merely teaches a specific configuration of nodes which results in a routing problem known as the "fish problem." Specifically, Wang merely teaches a node having a first interface to a first trunk for directly coupling to a first node and a second interface to a second trunk for directly coupling to a second node. As such, irrespective of the different ways in which the nodes of Figure 1 of Wang may be categorized by the Examiner as first and second types of nodes, Wang fails to teach or suggest a first high capacity trunk directly coupled to a first type of node and a second high capacity trunk directly coupled to a second type of node, as claimed in Appellants' claim 14.

Therefore, since Wang fails to teach or even suggest this configuration of the first and second high capacity trunks, Wang must also fail to teach or suggest selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node, as claimed in Appellants' claim 14.

Furthermore, Wang also fails to teach or suggest that the others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity

client signals destined for the first type of node, as further claimed in Appellants' claim 14.

For example, as described herein with respect to claim 6, with respect to Figure 1 of Wang, assuming that the traffic is split at node C, and that node D is the first node and node E is the second node, splitting of traffic at node C such that a portion of the traffic is sent to node D and another portion of the traffic is sent to node E simply does not teach or suggest that a portion of traffic destined for node D is sent to node E. Wang clearly does not teach transmission of data from C to D along the path C-E-F-D. As such, in this interpretation of Wang, Wang fails to teach or suggest that the "others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node," as claimed in Appellants' claim 14.

Similarly, for example, as described herein with respect to claim 6, with respect to Figure 1 of Wang, assuming that traffic is split at node C, and that node F is the first node and node E is the second node, although a portion of the traffic destined for node F may be sent to node E, this configuration fails to teach or suggest the specific coupling of nodes of Appellants' claim 1. Namely, in this interpretation of Wang, Wang fails to teach or suggest a first high capacity trunk directly coupled to a first type of node and a second high capacity trunk directly coupled to a second type of node, as claimed in Appellants' claim 14.

Therefore, there is no combination of nodes or associated teachings of Wang which teach or suggest the method including "receiving low capacity client signals, selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node; and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node; wherein said others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node," as claimed in Appellants' claim 14. As such, Wang fails to teach or suggest Appellants' claim 14, as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ

1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). Wang fails to teach or suggest Appellants' invention of claim 14, as a whole.

As such, for at least the reasons discussed above, Appellants' claim 14 is allowable over Wang under 35 U.S.C. 103(a).

Therefore, Appellants' claim 14 is allowable over Wang under 35 U.S.C. 103(a).

B. Claims 4, 9, 17, and 18

Claims 4, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Appellants' specification. Appellants respectfully traverse the rejection.

As discussed above, Wang fails to teach or suggest Appellants' claims 1, 6, and 14. With respect to claim 1, Wang fails to teach or suggest both an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1. With respect to claim 6, Wang fails to teach or suggest an apparatus for performing selective grooming of client signals, including a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node. With respect to claim 14, Wang fails to teach or suggest at least the limitations of selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node where the others of the low capacity signals are transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node. Thus, Wang fails to teach or suggest each of Appellants' claims 1, 6, and 14, as a whole.

Furthermore, Appellants' specification fails to bridge the substantial gap between Wang and Appellants' claims 1, 6, and 14. Appellants' specification merely states that a central office may pass traffic and that a cable station may split traffic. As such, the Wang reference and Appellants' specification, alone or in combination, fail to teach or suggest each of Appellants' claims 1, 6, and 14, as a whole.

As such, independent claims 1, 6, and 14 are allowable over Wang and Appellants' specification, alone or in combination. Furthermore, since claims 4, 9, 17, and 18 depend, either directly or indirectly from independent claims 1, 6, and 14, and recite additional limitations therefor, Appellants respectfully submit that that claims 4, 9, 17, and 18 are also allowable over Wang and Appellants' specification, alone or in combination.

Therefore, Appellants' claims 4, 9, 17, and 18 are allowable over Wang in view of Appellants' specification under 35 U.S.C. 103(a).

C. Claims 5, 10, and 15

Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Tyrrell (U.S. Patent No. 5,185,736, hereinafter "Tyrrell"). Appellants respectfully traverse the rejection.

As discussed above, Wang fails to teach or suggest Appellants' claims 1, 6, and 14. With respect to claim 1, Wang fails to teach or suggest both an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1. With respect to claim 6, Wang fails to teach or suggest an apparatus for performing selective grooming of client signals, including a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node. With respect to claim 14, Wang fails to teach or suggest at least the limitations of selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type

of node for transmission to the first type of node and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node where the others of the low capacity signals are transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node. Thus, Wang fails to teach or suggest each of Appellants' claims 1, 6, and 14, as a whole.

Furthermore, Tyrell fails to bridge the substantial gap between Wang and Appellants' claims 1, 6, and 14. In general, Tyrrell teaches a synchronous optical transmission system for interfacing SONET formatted channels to lower speed channels in either SONET format or otherwise. (Tyrrell, Abstract). In particular, the system includes terminal multiplexers and add-drop multiplexers for terminating lower speed channels, adding low speed channels to a high speed SONET channel, and to interface high speed SONET channels to other high speed SONET channels. (Tyrrell, Col. 1, Lines 15-20).

Tyrrell, however, fails to teach or suggest each and every element of each of Appellants' claims 1, 6, and 14. Namely, with respect to claim 1, Tyrrell fails to teach or suggest each of the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1. Similarly, with respect to claim 6, Tyrell fails to teach or suggest an apparatus for performing selective grooming of client signals, including a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the client signals destined for the first node are groomed into the high second capacity trunk to the second node. Similarly, with respect to claim 14, Tyrell fails to teach or suggest receiving low capacity client signals, selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node, and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node, wherein the others of the low capacity signals are transmitted over

the second high capacity trunk comprise low capacity client signals destined for the first type of node, as claimed in Appellants' claim 14.

In the Final Office Action dated May 24, 2006, the Examiner asserts that Tyrrell teaches that an "ADM or node inherently has an interface to a high speed capacity trunk called an east connection or type 2 node and also inherently has an interface to a high speed capacity trunk called a west connection or type 1 node." (Final Office Action, Pg. 2). As taught in Tyrrell, however, east and west connections do not denote different node types such that an east connection constitutes an interface to a type one node and a west interface constitutes an interface to a type two node. Rather, the east and west connections taught in Tyrrell merely denote direction of transmission and have no bearing on the type of node to which the east and west interfaces are connected. In other words, the interface from the ADM to another ADM on an east connection denotes a direction of transmission from the ADM to another ADM. Similarly, the interface from the ADM to another ADM on the west connection denotes a direction of transmission from the ADM to another ADM.

Tyrrell is completely devoid of any teaching or suggestion that the east and west connections are interfaces for coupling to different node types. The only type of nodes taught in Tyrrell are ADMs, and if the ADMs are assumed to be type one nodes then Tyrrell is devoid of any teaching or suggestion of type two nodes. As such, the east and west interfaces from an ADM both constitute interfaces to a type one node (or, alternatively, a type two node).

A pair of interfaces for coupling to respective type one nodes which happen to be located in different directions of transmission from the ADM, as taught in Tyrrell, is not an interface for coupling to a type one node and an interface for coupling to a type two node, as claimed in Appellants' claim 1. Similarly, a pair of interfaces for coupling to respective type one nodes which happen to be located in different directions of transmission from the ADM, as taught in Tyrrell, does not teach or suggest selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node; and transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node; wherein said others of the low capacity signals

transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node, as claimed in Appellants' claim 14.

Furthermore, Appellants' claims 1, 6, and 15 each includes a limitation indicating that only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node. As admitted by the Examiner, however, Tyrrell is completely devoid of any teaching or suggestion of "wherein only a portion of those low capacity client signals destined for the type one node are groomed into the high capacity trunk to the type two node." As such, Wang and Tyrell, alone or in combination, fail to teach or suggest each of Appellants' claims 1, 6, and 14, as a whole.

As such, independent claims 1, 6, and 14 are allowable over Wang and Tyrell, alone or in combination. Furthermore, since claims 5, 10, and 15 depend, either directly or indirectly from independent claims 1, 6, and 14, and recite additional limitations therefor, Appellants respectfully submit that that claims 5, 10, and 15 are also allowable over Wang and Tyrell, alone or in combination.

Therefore, Appellants' claims 5, 10 and 15 are allowable over Wang in view of Tyrrell under 35 U.S.C. 103(a).

D. Claims 19 and 20

Claim 19:

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Dravida (U.S. Patent No. 5,253,248, hereinafter "Dravida"). Appellants respectfully traverse the rejection.

As discussed above, Wang fails to teach or suggest Appellants' invention of claim 1. Namely, Wang fails to teach or suggest both an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, where only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1. As such, Wang fails to teach or suggest Appellants' claim 1, as a whole.

Furthermore, Dravida fails to bridge the substantial gap between Wang and Appellants' invention. Namely, Dravida fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1.

Rather, Dravida teaches a connection control scheme for connectionless networks. As taught in Dravida, congestion is monitored locally and thresholds are defined in order to declare the onset and abatement of congestion. As further taught in Dravida, since the control actions are taken in a completely distributed manner, based on local measurements only, no signaling messages need to be exchanged.

Dravida, however, fails to teach or suggest at least the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1. Thus, Wang and Dravida, alone or in combination, fail to teach or suggest Appellants' claim 1, as a whole.

As such, independent claim 1 is allowable over Wang and Dravida, alone or in combination. Since claim 19 depends from independent claim 1, and recites additional limitations therefor, Appellants respectfully submit that claim 19 is also allowable over Wang and Dravida, alone or in combination.

Furthermore, Wang and Dravida, alone or in combination, fail to teach or suggest at least the limitations of "determining an amount of traffic between another type one node and said type one node; determining whether said amount of traffic between said another type one node and said type one node exceeds a threshold, said threshold comprising a fraction of a capacity of said first high capacity trunk; and, if said amount of traffic between said type one node and said another type one node does not exceed said threshold, routing said amount of traffic over said second high capacity trunk to said type two node," as claimed in Appellants' claim 19.

Wang fails to teach or suggest "determining an amount of traffic between another type one node and said type one node; determining whether said amount of traffic between said another type one node and said type one node exceeds a threshold, said threshold comprising a fraction of a capacity of said first high capacity trunk; and, if said amount of traffic between said type one node and said another type one node does not exceed said threshold, routing said amount of traffic over said second high capacity trunk to said type two node," as claimed in Appellants' claim 19. Furthermore, Dravida fails to bridge the substantial gap as between Wang and Appellants' claim 19.

In the Final Office Action dated May 24, 2006, the Examiner cites a specific portion of Dravida, asserting that Dravida teaches "determining the amount of traffic split based upon a threshold." (Final Office Action, Pg. 6). The cited portion of Dravida, however, merely states that congestion caused by transient focused overloads in connectionless networks is relieved by routing a portion of traffic intended for a congested primary path onto a predefined alternate path. (Dravida, Col. 3, Lines 10-12). Dravida further teaches that threshold values may be used "for initiating a transition to an alternate route and for reverting to a primary route...." (Dravida, Col. 3, Lines 32-34).

In other words, Dravida merely teaches that threshold values may be used to effect transitions between primary routes and alternate routes. The use of threshold values to transition between primary and alternate routes, as taught in Dravida, is not determining an amount of traffic between two type one nodes and determining whether the amount of traffic between the nodes exceeds a threshold, as claimed in Appellants' claim 19. Furthermore, the threshold of Dravida is related to a route through a network, whereas the threshold of Appellants' claim 19 is a fraction of a capacity of a specific high capacity trunk. Moreover, for at least the reasons discussed hereinabove with respect to claim 1, Dravida also fails to teach or suggest that if the amount of traffic between the type one nodes exceeds the threshold, routing that amount of traffic over a second high capacity trunk to a type two node, as claimed in Appellants' claim 19.

As such, Wang and Dravida, alone or in combination, fail to teach or suggest Appellants' claim 19, as a whole.

Therefore, Appellants' claim 19 is allowable over Wang in view of Dravida under 35 U.S.C. 103(a).

Claim 20:

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Dravida (U.S. Patent No. 5,253,248, hereinafter "Dravida"). Appellants respectfully traverse the rejection.

As discussed above, Wang fails to teach or suggest Appellants' invention of claim 1. Namely, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as claimed in Appellants' claim 1. As such, Wang fails to teach or suggest Appellants' claim 1, as a whole.

Furthermore, Dravida fails to bridge the substantial gap between Wang and Appellants' invention. Namely, Dravida fails to teach or suggest at least the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1.

Rather, Dravida teaches a connection control scheme for connectionless networks. As taught in Dravida, congestion is monitored locally and thresholds are defined in order to declare the onset and abatement of congestion. As further taught in Dravida, since the control actions are taken in a completely distributed manner, based on local measurements only, no signaling messages need to be exchanged.

Dravida, however, fails to teach or suggest at least the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as claimed in Appellants' claim 1. Thus, Wang and Dravida, alone or in combination, fail to teach or suggest Appellants' claim 1, as a whole.

As such, independent claim 1 is allowable over Wang and Dravida, alone or in combination. Since claim 19 depends from independent claim 1, and recites additional limitations therefor, Appellants respectfully submit that claim 19 is also allowable over Wang and Dravida, alone or in combination.

Furthermore, Wang and Dravida, alone or in combination, fail to teach or suggest the limitation of "if said amount of traffic between said type one node and said another type one node exceeds said threshold, provisioning at least one additional trunk between said another type one node and said type one node," as claimed in Appellants' claim 20.

Wang fails to teach or suggest "if said amount of traffic between said type one node and said another type one node exceeds said threshold, provisioning at least one additional trunk between said another type one node and said type one node," as claimed in Appellants' claim 20. Furthermore, Dravida fails to bridge the substantial gap as between Wang and Appellants' claim 20.

In the Final Office Action dated May 24, 2006, the Examiner cites a specific portion of Dravida, asserting that Dravida teaches assigning an additional route when the congestion exceeds a threshold. The cited portion of Dravida, however, merely states that an algorithm is used for constructing alternate paths. An algorithm for constructing an alternate path through a network, as taught in Dravida, is not provisioning an additional trunk between two nodes.

As such, Wang and Dravida, alone or in combination, fail to teach or suggest Appellants' claim 19, as a whole.

Therefore, Appellants' claim 20 is allowable over Wang in view of Dravida under 35 U.S.C. 103(a).

Conclusion

Thus, Appellants submit that none of the claims presently in the application are allowable under the provisions of 35 U.S.C. §103.

For the reasons advanced above, Appellants respectfully urge that the rejections of claims 1, 3-6, 8-10, 14, 15 and 17-20 are improper. Reversal of the rejections of the Final Office Action is respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) A node for grooming low capacity client signals into a high capacity signal, comprising:

an interface to a first high capacity trunk for directly coupling to a type one node; and

an interface to a second high capacity trunk for directly coupling to a type two node;

wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node.

2. Cancelled

3. (Original) The apparatus of claim 1 wherein the type two node is a high traffic node.

4. (Original) The apparatus of claim 1 wherein the type one node is a cable station and the type two node is a central office.

5. (Previously Presented) The apparatus of claim 1, wherein the low capacity client signals comprise plesiochronous digital hierarchy signals and the high capacity signal comprises a synchronous transport module signal.

6. (Previously Presented) An apparatus for performing selective grooming of client signals, the apparatus comprising:

a node coupled (a) directly to a first node via a first high capacity trunk, and (b) directly to a second node via a second high capacity trunk such that only a portion of the

client signals destined for the first node are groomed into the high second capacity trunk to the second node.

7. Cancelled

8. (Original) The apparatus of claim 6 wherein the first node is a low traffic node and the second node is a high traffic node.

9. (Original) The apparatus of claim 6 wherein the first node is a cable station and the second node is a central office.

10. (Previously Presented) The apparatus of claim 6, wherein the client signals comprise plesiochronous digital hierarchy signals and the high capacity trunk supports a synchronous transport module signal.

11. Cancelled

12. Cancelled

13. Cancelled

14. (Previously Presented) A method for use in a node, the method comprising the steps of:

receiving low capacity client signals;

selectively grooming a portion of the received low capacity client signals into a first high capacity trunk directly coupled to a first type of node for transmission to the first type of node; and

transmitting others of the low capacity client signals over a second high capacity trunk directly coupled to a second type of node;

wherein said others of the low capacity signals transmitted over the second high capacity trunk comprise low capacity client signals destined for the first type of node.

15. (Previously Presented) The method of claim 14, wherein the low capacity client signals comprise plesiochronous digital hierarchy signals and the high capacity trunk supports a synchronous transport module signal.

16. (Cancelled)

17. (Original) The method of claim 14 wherein the second type of node is a cable station and the first type of node is a central office.

18. (Original) The method of claim 14 wherein the second type of node is a low traffic node and the first type of node is a high traffic node.

19. (Previously Presented) The apparatus of claim 1, wherein grooming of the portion of those low capacity client signals destined for said type one node into the second high capacity trunk to said type two node further comprises:

determining an amount of traffic between another type one node and said type one node;

determining whether said amount of traffic between said another type one node and said type one node exceeds a threshold, said threshold comprising a fraction of a capacity of said first high capacity trunk; and

if said amount of traffic between said type one node and said another type one node does not exceed said threshold, routing said amount of traffic over said second high capacity trunk to said type two node.

20. (Previously Presented) The apparatus of claim 19, further comprising:

if said amount of traffic between said type one node and said another type one node exceeds said threshold, provisioning at least one additional trunk between said another type one node and said type one node.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None